

**IN THE UNITED STATES DISTRICT COURT  
FOR THE MIDDLE DISTRICT OF ALABAMA,  
NORTHERN DIVISION**

**HAROLD KELLY MURPHY,**

**Plaintiff.**

**v.**

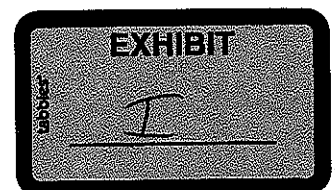
**SOUTHERN ENERGY HOMES, INC.,  
et al.,**

**Defendants.**

**Case No.: 2:06-cv-618-MEF**

**DECLARATION OF FRANCIS CONLIN**

1. My name is Francis Conlin. I am over the age of eighteen years and make this declaration based upon my personal knowledge.
2. I am a practicing professional engineer and certified mold remediator with more than twenty years experience. My curriculum vitae is attached as Exhibit 1.
3. I was contacted in 2007 by Scott Simpson to assist him in evaluating certain performance aspects of the Murphy residence at 5489 Washington Ferry Road, Montgomery, Alabama. I was also asked to review the deposition, conclusions and reports of Bobby Parks. I have prepared a written report of my findings, a copy of which is attached as Exhibit 2.
4. Based on two personal inspections of the property and a careful review of the investigation and conclusions of Mr. Parks, it is my professional opinion, to a reasonable degree of scientific certainty, that Parks failed to meet the standard of care in the performance of his investigation, and that Parks' conclusions are not based on sufficient data or sound scientific principles.
5. Parks contends that the vinyl covered gypsum wallboard caused condensation to accumulate within the wall cavity, but he failed to consider several factors that can heavily influence



moisture levels within a home. Standard industry practice and standard scientific methods require testing for alternative explanations for any observed moisture accumulation. Parks failed to consider or rule out such alternative explanations. Without controlling for these factors, it is impossible to isolate the problem to the interior vapor barrier. Indeed, it is impossible to tell whether the interior vapor barrier is even contributing to any problem at all. Omission of these factors in Parks' analysis is a fatal flaw that renders the report's conclusions unreliable

6. For example, Parks does not consider, much less rule out, alternate sources of moisture such as roof leaks or bulk water leaks, both of which the Plaintiff admits occurred. Parks also fails to consider the impact that high moisture levels in the crawlspace might have on the moisture level of the wall cavities. Indeed, he never even entered the crawlspace to investigate it as a possible source of moisture accumulation. If he had, he would have noticed improper ventilation in the crawlspace with the potential to contribute significantly to higher moisture levels under the house. Parks also fails to consider air leakage from poorly sealed light fixtures or other sources as a factor, despite the fact that vapor diffusion is known by experts in the field to be a much less significant factor in moisture migration into wall cavities than is air leakage.
7. Parks used unreliable methodology in his attempted use of moisture meters readings to show excessive moisture accumulation within the walls. Moisture meters such as the one used by Parks on the Murphy home measure the dielectric strength, called the capacitance, of a material in its proximity. Water content influences capacitance, but it is an electrical property of the gypsum wallboard that is actually being measured, not the moisture level itself. The Gypsum Association clearly states that moisture meters do not provide accurate

moisture content readings for the gypsum wallboard. To determine the actual moisture content of gypsum wallboard, it is necessary to remove a piece of the wallboard and bake it to measure the amount of water that is removed during the baking process. Parks did not do this. Therefore, any attempt by Parks to make claims about the absolute moisture content of the walls based on moisture meter readings would be improper and unreliable.


8. Parks' use of an infrared camera in his investigation is similarly flawed. Parks uses an infrared camera to measure the temperature distribution of the wallboard. Infrared cameras can be set at different levels to focus on temperature variations of different magnitudes. For example, a camera can be programmed to highlight temperature differences as small as one degree Fahrenheit, or it can be programmed to only display variations of ten degrees or more. Translating this temperature profile into reliable information on moisture content requires removal of the specific portion of the wallboard in question to examine the quality of insulation, the presence of extra thermal bridging, possible air leakage in the wall, etc. Industry standards call for certain criteria to be met before an infrared camera can be used reliably: The difference between the indoor and outdoor temperature should be at least 18 degrees Fahrenheit for at least four hours prior to inspection. In addition, an inspector cannot allow any direct sunlight on an inspected surface for at least three hours prior to the inspection.
9. Parks did not indicate what settings were used in his thermographic imaging of the Murphy home. He could not state the magnitude of the temperature differentials the camera would capture. He did not account for the Code's allowance of thermal shorts in up to one percent of total exterior surface area. He does not appear to have made any attempt to measure or control for sunlight exposure prior to the moisture meter use. Parks does not appear to have

made any attempt to measure the difference between the inside and outside temperature, either at the time of testing or for the several hours before testing. Parks does not appear to have removed any portion of the gypsum wallboard to inspect it for moisture content. These actions by Parks violate the standard reporting expectations of thermographic insulation inspections as indicated by the ASTM Standard Practice for Thermographic Inspection.

10. Parks' mold sampling methodology also lacks merit. Pushing insulation away from the gypsum wallboard to obtain an air sample is problematic as is the sample site selection method. This sampling protocol is unreliable and is apparently made up by Parks and has not been subjected to peer review or scientific testing.
11. Parks' conclusions regarding condensation as the cause of moisture accumulation in the walls do not comport with an analysis of historical weather data for Montgomery. Over the past four years, there have only been 12 days when the outside daily dew point average was above the wall temperature resulting from the thermostat set point in the Murphy home. When the wall cavity surface is warmer than the dew point of the outside air, condensation in the wall cavity is impossible.
12. In short, to a reasonable degree of scientific certainty, it is my opinion that Parks' methodology lacks scientific validity and reliability, and his conclusions are unsupported by his data.

I declare under penalty of perjury that the information contained in this declaration is true and correct to the best of my knowledge.

Executed on this the 6<sup>th</sup> day of February 2008.

  
Francis Conlin